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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,426	04/03/2000	Kyeong Jin Kim	8733.20102	4200

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EXAMINER

NGUYEN, DUNG T

ART UNIT PAPER NUMBER

2871

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/541,426

Applicant(s)

KIM ET AL.

Examiner

Dung Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/16/2002 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 7-22, 24, 26, 29-33, 35-50, 52 and 54 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, as state in the final office action dated 08/14/2002.

Regarding claims 1-5, 7, 11-22, 24, 26, 29-33, 35, 39-50, 52 and 54, Koma discloses a multi-domain liquid crystal display (LCD) device (figures 3, 8 and 10) comprising:

a first substrates (10) and a second substrate (30) facing each other;

a homeotropic liquid crystal layer (41);

a plurality of gate bus lines (12), a plurality of data bus lines (20), a plurality of TFTs (15) including a gate insulator (13), a passivation layer (21), and a pixel electrode (17);

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an electric field inducing window (control window 33b) in the pixel electrode, so as the pixel electrode is divided into at least two regions (e.g. four regions/domains in figure 10);

a polyimide alignment layer (23) having a pretilt angle substantially  $1^{\circ}$  (respect to normal line);

wherein the multi domain effect is obtained by dividing the pixel region into areas having a shape of "X" (figure 10)

Although Koma does not disclose a photo alignment forming on at least one of the first and second substrates, Koma does disclose that the alignment layer is formed by polyimide which can be a photoalignment as shown by Auman et al. (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the polyimide photo alignment film of Auman et al. by using a photo-aligning treatment such as exposing the alignment film to UV light in order to avoid electrostatic discharge caused by rubbing process (col. 2, ln. 48). Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an alignment material selected from the group of PVCN, PSCN and CelCn based compound, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 8-10 and 36-38, the limitation of the gate insulating and/or the passivation layer and/or the pixel electrode are/is patterned recites a one-step process which does not further limit the structure of the claimed LCD device. Therefore, the process limitation does not have patentable weight.

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4. Claims 27-28 and 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Sugiyama et al., US Patent 5,757,455.

Regarding the above claims, the modification to Koma does not disclose a negative uniaxial film or a negative biaxial film disposed on at least one substrate. Sugiyama et al. disclose a compensation film (e.g., a negative uniaxial film 49) can be formed over at least one substrate of an LCD panel (41) (see figure 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a negative uniaxial film on at least one substrate of an LCD device because it is a common practice in the art to improve contrast and/or reduce inversion, often in the same viewing areas in an LCD device (see col. 11, lines 30-41).

5. Claims 6 and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Applicant's submitted prior art, Koma et al., figure 5, "No-Rub Multi-Domain TFT Using Surrounding-Electrode Method", SID, 1995, pages 869-872, as stated in the previous office action.

Regarding claims 6 and 34, although Koma ('556) does not disclose the "L-shaped" TFT in the LCD device, it would have been obvious to one skill in the art to form a TFT having a "L-shaped" as evidence from the Applicant's submitted prior art, Koma et al. figure 5 since it is well known in the art in order to increase an aperture ratio of an LCD device.

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6. Claims 23 and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Bos et al., US Patent No. 6,141,074, as stated in the previous office action.

Regarding the above claims, the modification to Koma discloses the claimed invention as described above except for the liquid crystal layer which has a positive or negative dielectric anisotropy and chiral dopants. Bos et al. do disclose a multi-domain LCD which can be formed with a positive or negative dielectric anisotropy liquid crystal layer (see Summary of the Invention). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a liquid crystal layer having a positive dielectric anisotropy or negative dielectric anisotropy because the use of one conventional material over another merely depends on the desire of the manufacturer (i.e., homogeneous or homeotropic alignment) and/or the availability and practicality of the material for the chosen manufacturing process (see Summary of the Invention).

7. Claims 51 and 53 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma, US Patent No. 5,608,556, in view of Auman et al., US Patent No. 6,139,926, further in view of Van De Witte, US Patent No. 5,936,692, as stated in the previous office action.

Regarding the above claims, Koma discloses the claimed invention as described above except for the liquid crystal layer including chiral dopants. However, Van De Witte does disclose that an LCD can be included a chiral dopant (col. 2, ln. 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a chiral dopant in an LCD device as shown by Van de Witte since it is a common practice in the art to obtain a uniform twist sense (col. 2, ln. 24).

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***Response to Arguments***

Regarding claims 1 and 29, Applicants contend that none of the cited references, singly or in combination, teaches or suggests at least the feature of an electric field inducing window in a pixel region/electrode, a photo-alignment layer having a pretilt angle on at least one of the first and second substrates and "X" shape in the pixel region to form a multi domain LCD (amendment, page 3). However, Applicants provides no evidence to support such contention.

Accordingly, the rejection of claims 1-56 stand.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 703-305-0423. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7726 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DN  
03/10/2003



***Dung Nguyen  
Patent Examiner  
GAU 2871***